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| 10/681,279 | 10/09/2003 | Guido Schmitz | 243915US0CONT | 5991 |

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

| EXAMINER | |
|---|---|
| BRUENJES, CHRISTOPHER P | |
| ART UNIT | PAPER NUMBER |
| 1772 | |

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | | |
|---|---|---|
| ***Office Action Summary*** | **Application No.**<br>10/681,279 | **Applicant(s)**<br>SCHMITZ ET AL. |
| | **Examiner**<br>Christopher P. Bruenjes | **Art Unit**<br>1772 |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *30 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-16,19,20,23-34,37-52 and 56-69* is/are pending in the application.

4a) Of the above claim(s) *34 and 69* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,19,20,23-33,37-52 and 56-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *20051228, 20060130*.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *WITHDRAWN REJECTIONS*

1. All previous rejections of record in the previous Office Action mailed November 7, 2005 have been withdrawn due to Applicant's amendments, arguments and terminal disclaimer filed January 30, 2006.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-16, 19-20, 23-24, 26-27, 29, 31-33, 37-52, 56-59, 61-62, 64, 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al (USPN 6,177,162) in view of Nohara et al (USPN 4,816,304).

Siour et al teach a pipe or hose for conveying petrol in a motor vehicle (col.1, l.5-8). The wall of the pipe or hose comprises a composite having the following sequence of layers: inner layer/EVOH/binder/external layer (col.4, l.20-26). Regarding claims 1, 19-20, 23, 56-58, Siour further teaches that other layers such as regrind layers are added as intermediate layers and binder layers are also used between any of the intermediate layers and between the intermediate layers and the inner and/or outer layers (col.4, l.8-19). Therefore, Siour teaches embodiments in which the composite contains the following sequence of layers: inner layer/binder/EVOH/binder/regrind/binder/external layer. The inner layer is formed of a layer having at least one member selected from the group consisting of PA6 and PA66, and may also comprise PA12 and/or PA11 (col.1, l.28-45). The outer layer is formed of a layer having at least one member selected from the group consisting of PA11 or PA12 (col.3, l.22-26). Regarding claims 24 and 59, the inner layer comprises carbon black, which renders the layer electrically conductive (col.2, l.65-67). Regarding claims 27, 29, 62, and 64, the composite is in the form of a hollow tube (see abstract). Regarding claims 31-32 and 66-67, the corrugated hollow tube is used as a fuel pipe or filler pipe (col.1, l.10-20). Regarding claims 33 and 68, by forming the pipes by coextrusion the composite is a film.

Siour et al fail to teach that the binder is made from composition of layer (I) as claimed. However, Nohara et al teach that copolymer nylon adhesives and blends thereof are used to bond EVOH intermediate layers to outer and inner thermoplastic layers in forming multilayered hollow articles (see abstract and col.3, l.6-12). Specifically, Nohara et al teach copolymers or blends containing caprolactam and lauryl lactam, which is nylon 6 and nylon 12 respectively (col.4, l.11-13). Nohara et al also teach that blends of the copolyamides are used as the copolyamide nylon adhesive. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made that blends or copolyamides such as PA 6/12 are used in forming adhesives for bonding an EVOH layer to inner and outer thermoplastic layers because of their strong bonding properties, as taught by Nohara et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select a blend or copolymer containing PA6 monomers and PA12 monomers as the binder or tie layers of Siour et al since Nohara et al teaches that blends or copolymer nylons containing PA6 and PA12 are used as adhesives for bonding EVOH to inner and outer layers of thermoplastics. Furthermore, it would have been obvious to one having ordinary skill in the art that a nylon adhesive used for bonding EVOH would also be used in bonding to other nylons, especially nylon 6 or nylon 12 when the nylon adhesive contains monomers containing PA6 and PA12.

Regarding claims 1-16, 26, 37-52 and 61, depending on the percentage of each polyamide in the polyamide composition of Nohara et al and the percentage of additives specified, the composition of layer I comprises polyamide (a) or (c) or the combination of the two having at least 30 parts and not more than 60 parts of each and not more than 40 parts of polyamide (b). Note that because the claims 9-15 and 45-51 are dependent on claims 1 and 37 and claims 1 and 37 define polyamide (b) with a concentration of 0 to 100 parts, the limitations on polyamide (b) are met when polyamide (b) is not present in the composition of layer I.

5. Claims 1-16, 19-20, 23-24, 26-27, 29, 31-33, 37-52, 56-59, 61-62, 64, 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al (USPN 6,177,162) in view of Nohara et al (USPN 4,816,304) and further in view of Borggreve et al (USPN 5,859,148).

Siour et al and Nohara taken as a whole teach all that is claimed the claims as shown above, but fail to explicitly teach the polyamine-polyamide copolymer within the Markush group of claims 1 and 37. However, Borggreve et al teach star-branched polymers consisting of a core compound having at least three functional groups, including dendrimer amine, from which emanate linear polymer chains having at least one hetero atom in the chain, including polyamide. The polyamides may be obtained by polycondensation of diacids and diamines, amino acids, or lactams (col.2, l.27-33). The dendrimer amines may have at least 11 nitrogen atoms and a number average molecular weight of at least 500g/mol, as is immediately envisaged from the formula set forth at column 3. In example II, nylon 66 is reacted with a dendrimer amine. Borggreve et al also teach that star-branched polymers have a viscosity many times lower than that of the non-branched polymer having a corresponding total molecular weight, therefore making the star-branched polyamine-polyamide copolymer easier to extrude than the corresponding polyamide homopolymers (col.3, 1.54-62). One of ordinary skill in the art would have recognized that a star-branched polyamine-polyamide copolymer would be added to a polyamide composition in order to lower the intrinsic viscosity so that extruding the composition is easier, as taught by Borggreve et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to add the star-branched polyamine-polyamide copolymer of Borggreve et al to the polyamide composition of Nohara et al in order to improve the extrudability of the composition, as taught by Borggreve et al.

6. Claims 25, 28, 60, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour et al in view of Nohara alone or in combination with Borggreve as applied to claims 1 and 37 above, and further in view of Mitchell et al (USPN 5,460,771).

Regarding claims 25 and 60, Siour, Nohara, and Borggreve et al taken as a whole teach all that is claimed in claims 1 and 37 as shown above, and teach that at least one layer is electrically conductive. However, they fail to teach that at least one layer adjacent to the innermost layer is electrically conductive. However, Mitchell et al teach that in addition to the innermost layer, the intermediate layer or layers are also made electrically conductive by adding conductive materials, in order to exhibit conductive or static dissipative characteristics (col.11, l.33-45). One of ordinary skill in the art would have recognized that intermediate layers adjacent to the innermost layer of a pipe or hose for conveying petrol are made electrically conductive, so that the hose or pipe will exhibit conductive or static dissipative characteristics, as taught by Mitchell et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add electrically conductive materials to one of the intermediate layers adjacent the innermost layer of the pipe or hose of Siour, Nohara and Borggreve, in order to render the pipe or hose fully conductive or static dissipative, as taught by Mitchell et al.

Regarding claims 28 and 63, Siour, Nohara and Borggreve et al fail to teach that at least one region of the composite has a corrugated shape. However, Mitchell et al teach that Nylons possess significant elastic memory, which makes it difficult to successfully bend a piece of tubing into the shape or contours necessary in the particular automobile application. Therefore, Mitchell et al teach that the tubing should have corrugations at the appropriate contour regions to accommodate the particular bends and angles without imparting under fatigue or stress (col.3, l.1-17). One of ordinary skill in the art would have recognized that a hose used in automotive vehicles are required to be bent to conform to the contours of the vehicle and that Nylons possess elastic memory which makes bending the hose or pipe into a certain contour or shape difficult, as taught by Mitchell et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form corrugation regions in the composite tube of Siour, Nohara, and Borggreve, in order to render the tube capable of maintaining particular bends and angles without imparting under fatigue or stress, as taught by Mitchell et al.

7. Claims 30 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siour in view of Nohara alone or in combination with Borggreve as applied to claims 1 and 37 above, and further in view of Kitami et al (USPN 5,362,530).

Siour, Nohara, and Borggreve teach all that is claimed in claims 1 and 37 as shown above, but fail to teach the composite further comprising an elastomer layer adjacent the outermost layer. However, Kitami et al teach that elastomer cover layers are added to polyamide based hoses and pipes in order to provide a layer that is highly moisture-proof, heat resistant, and weather resistant, and fully retentive of physical qualities at elevated temperatures (see abstract and col.5, l.23-26). One of ordinary skill in the art would have recognized that a cover layer of elastomer is added adjacent to the outermost layer of a polyamide-based hose or pipe for conveying fuel oils, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, as well as, an outer layer that is fully retentive of physical qualities at elevated temperatures, as taught by Kitami et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to add an elastomer layer adjacent the outermost layer of Siour, Nohara, and Borggreve, in order to provide the hose or pipe with enhanced moisture, heat, and weather resistance, and retention of physical properties at elevated temperatures, as taught by Kitami et al.

### *ANSWERS TO APPLICANT'S ARGUMENTS*

8. Applicant's arguments regarding the rejections of record have been considered but they are moot since the rejections have been withdrawn.

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes
Examiner
Art Unit 1772
CPB
CPB
March 8, 2006

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

3/9/06